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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
GRAYBILL, DAVID E	

ART UNIT	PAPER NUMBER
2822	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/801,697	ISHII ET AL.	
	Examiner	Art Unit	
	David E. Graybill	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,7-11,13-16 and 18-29* is/are pending in the application.

4a) Of the above claim(s) *9-11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,7,8,13-16 and 18-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 October 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10-11-7 has been entered.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 7, 11, 14, 16, 18, 19, 21, 22, 24 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Clayton (6049975), Higashiguchi (6023098) and Abbot (20030137032).

At column 4, line 59 to column 9, line 24; column 10, lines 39-61; column 11, line 31 to column 12, line 25; column 17, lines 7-29; column 17, line 53 to column 19, line 45; and column 30, lines 44-55, Clayton discloses the following:

An electronic circuit apparatus comprising: a multilayered wiring board 50 mounted with at least two electronic components 54; a wiring board 50 mounted with at least one heat generating component 54; a heat sink 48 having an inherently higher heat conductivity than those of the multilayered wiring board and a polyimide wiring board, wherein the multilayered wiring board is fixed to one surface of the heat sink via adhesive 52 and the polyamide wiring board is fixed to another surface 48' of the heat sink via a adhesive 52; an external connection terminal (60 and "conductive lines and traces routed across the surface") to which the multilayered wiring board and/or the polyamide wiring board is electrically connected; and a resin composition 70 with which the entire surfaces of the multilayered wiring board and the polyamide wiring board, a part of the heat sink and a part of the external connection terminal (at least "conductive lines and traces routed across the surface") are integrally molded; wherein a part of a

passage for circulating a cooling medium "coolant" is inherently formed in an external layer of the electronic circuit apparatus; wherein at least two electronic circuit apparatuses are stacked on top of each other (Figure 28A), and wherein the passage for circulating cooling medium is provided in the stacked electronic circuit apparatuses; wherein the heat sink is made of a clad material containing a copper alloy or copper; wherein the multilayered wiring board comprises at least one ceramic substrate; wherein the polyamide wiring board is bent at least one end such that the polyamide wiring board is fixed to the another surface of the heat sink via the adhesive and fixed at the at least one end to the one surface of the heat sink; wherein the multilayered wiring board and the polyamide wiring board are electrically connected.

Re claim 21: An inherent automobile control unit comprising: a multilayered wiring board mounted with at least two electronic components; a polyimide wiring board mounted with at least one heat generating component; a heat sink having a higher heat conductivity than those of the multilayered wiring board and the polyimide wiring board, wherein the multilayered wiring board is fixed to one surface of the heat sink via adhesive and the polyimide wiring board is fixed to another surface of the heat sink via a adhesive; an external connection terminal to which the multilayered wiring board and/or the polyimide wiring board is electrically

connected; and a thermosetting resin composition with which the entire surfaces of the multilayered wiring board and the polyimide wiring board, a part of the heat sink and a part of the external connection terminal are integrally molded.

Re claim 22: An automobile control unit according to claim 21, wherein a part of a passage for circulating a cooling medium is formed in an external layer of the electronic circuit apparatus.

Re claim 24: An automobile control unit according to claim 21, wherein the heat sink is made of a clad material containing a copper alloy or copper.

Re claim 26: An automobile control unit according to claim 21, wherein the multilayered wiring board comprises at least one ceramic substrate.

Re claim 27: An automobile control unit according to claim 21, wherein the polyimide wiring board is bent at least one end such that the polyimide wiring board is fixed to the another surface of the heat sink via the adhesive and fixed at the at least one end to the one surface of the heat sink.

Re claim 28: An automobile control unit according to claim 27, wherein the multilayered wiring board and the polyimide wiring board are electrically connected.

To further clarify the disclosure of the heat sink having an inherently higher heat conductivity than those of the multilayered wiring board and a polyimide wiring board, it is noted that Clayton discloses that the heat sink is

"stainless steel," and stainless steel inherently has a higher heat conductivity than the polyamide multilayered wiring board, and a polyimide wiring board. In any case, Clayton discloses that heat conductivity is a result-effective variable. Therefore, it would have been obvious to try variations of the heat conductivity result effective variable, including the claimed variations because "a person of ordinary skill in the art has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385 (U.S. 2007). See also, Pfizer Inc. v. Apotex Inc., 82 USPQ2d 1852 (Fed. Cir. 2007). Moreover, as reasoned from well established legal precedent, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed heat conductivity limitations because applicant has not disclosed that, in view of the applied prior art, the limitations are for a particular **unobvious** purpose, produce an unexpected result, or are otherwise critical. For that matter, applicant has not disclosed that the higher heat conductivity is for **any** purpose or produces **any** result. Furthermore, it appears prima facie that the product would possess utility using another heat conductivity. Indeed, it has been held that optimization of range limitations are prima facie obvious

absent a disclosure that the limitations are for a particular **unobvious** purpose, produce an unexpected result, or are otherwise critical. See MPEP 2144.05(II): "Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. '[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.'" In re Aller, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955). See also In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969), Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989), and In re Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990). As set forth in MPEP 2144.05(III), "Applicant can rebut a prima facie case of obviousness based on overlapping ranges by showing the criticality of the claimed range. 'The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range.' In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP § 716.02 - § 716.02(g) for a discussion of criticality and unexpected results."

To further clarify the disclosure wherein a part of a passage for circulating a cooling medium is inherently formed in an external layer of the electronic circuit apparatus, it is noted that it is inherent that the "entrance channel" and the "exit channel" must communicate with a coolant passage formed in an external layer of the apparatus.

To further clarify the disclosure of an inherent automobile control unit, the preambular language, "An automobile control unit" has been given no patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where, as here, it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Furthermore, the language, "An automobile control unit" is a statement of intended use of the product that does not appear to result in a structural difference between the claimed product and the product of the applied prior art. Further, because the product of the applied prior art appears to have the same structure as the claimed product, it appears to be capable of being used for the intended use, and the statement of intended use does not patentably distinguish the claimed product from the product of

the applied prior art. The manner in which a product operates is not germane to the issue of patentability of the product; Ex parte Wikdahl 10 USPQ 2d 1546, 1548 (BPAI 1989); Ex parte McCullough 7 USPQ 2d 1889, 1891 (BPAI 1988); In re Finsterwalder 168 USPQ 530 (CCPA 1971); In re Casey 152 USPQ 235, 238 (CCPA 1967). Also, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim."; Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). And, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims."; In re Young, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 136 USPQ 458, 459 (CCPA 1963)). And, claims directed to product must be distinguished from the prior art in terms of structure rather than function. In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does [or is intended to do]." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

However, Clayton does not appear to explicitly disclose a polyimide wiring board.

Nonetheless, Clayton discloses a polyamide wiring board. Furthermore, at column 6, lines 4-6, Higashiguchi discloses that polyamide and polyimide are alternatives and equivalents; therefore, as reasoned from

well established legal precedent, it would have been obvious to substitute or combine the polyimide of Higashiguchi for or with the polyamide of Clayton. See In re May (CCPA) 136 USPQ 208 (It is our opinion that the substitution of Wille's type seal for the cement of Hallauer in Figure 1 would be obvious to persons of ordinary skill in the art from the disclosures of these references, merely involving an obvious selection between known alternatives in the art and the application of routine technical skills.); In re Cornish (CCPA) 125 USPQ 413; In re Soucy (CCPA) 153 USPQ 816; Sabel et al. v. The Wickes Corporation et al. (DC SC) 175 USPQ 3; Ex parte Seiko Koko Kabushiki Kaisha Co. (BdPatApp&Int) 225 USPQ 1260; and Ex parte Rachlin (BdPatApp&Int) 151 USPQ 56. See also Smith v. Hayashi, 209 USPQ 754 (Bd. of Pat. Inter. 1980) (However, there was evidence that both phthalocyanine and selenium were known photoconductors in the art of electrophotography. "This, in our view, presents strong evidence of obviousness in substituting one for the other in an electrophotographic environment as a photoconductor." 209 USPQ at 759.). An express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. In re Fout, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very

same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted). "For example, where a claimed apparatus requiring Phillips head screws differs from a prior art apparatus describing the use of flathead screws, it might be hard to find motivation to substitute flathead screws with Phillips head screws to arrive at the claimed invention. However, the prior art would make it more than clear that Phillips head screws and flathead screws are viable alternatives serving the same purpose. Hence, the prior art would 'suggest' substitution of flathead screws for Phillips head screws albeit the prior art might not 'motivate' use of Phillips head screws in place of flathead screws. Ex parte Jones, 62 USPQ2d 1206 (BdPatApp&Int 2001). See also In re Crockett, 279 F.2d 274, 126 USPQ 186 (CCPA 1960); Ex parte Quadranti, 25 USPQ2d 1071 (Bd. Pat. App. & Inter. 1992) and KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385 (U.S. 2007)..

Also, Clayton does not appear to explicitly disclose a thermosetting resin composition; wherein said heat sink is made of a clad material.

Nonetheless, at paragraphs 7, 48, 54, 55, 62 and claim 8, Abbott discloses a thermosetting resin composition 311 wherein a heat sink "leadframe" is made of a clad material 21. Moreover, it would have been obvious to combine this disclosure of Abbott with the disclosure of Clayton

because it would facilitate provision of the resin composition and heat sink of Clayton, and, as disclosed by Abbott as cited, it would provide good adhesion of the resin composition and heat sink.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clayton, Higashiguchi and Abbot as applied to claim 7, and further in combination with Thorum (20020088304).

Clayton, Higashiguchi and Abbot do not appear to explicitly disclose wherein the electronic circuit apparatus is fixed on the interior of an automatic transmission assembly of an automobile.

Notwithstanding, at paragraphs 33-37, Thorum discloses wherein an electronic circuit apparatus 14 is fixed on the interior of an automatic transmission assembly 12 of an automobile. Moreover, it would have been obvious to combine this disclosure of Thorum with the disclosure of the applied prior art because it would facilitate provision and cooling of the apparatus of Thorum.

Also, Clayton, Higashiguchi and Abbot do not appear to explicitly disclose wherein said cooling medium is a transmission fluid.

Nonetheless, the language "for circulating a cooling medium . . . wherein said cooling medium is a transmission fluid" is a statement of intended use of the apparatus that does not appear to result in a structural difference between the claimed apparatus and the apparatus of the applied

prior art. Further, because the apparatus of the applied prior art appears to have the same structure as the claimed apparatus, it appears to be capable of being used for the intended use, and the statement of intended use does not patentably distinguish the claimed apparatus from the apparatus of the applied prior art. The manner in which a product operates is not germane to the issue of patentability of the product; Ex parte Wikdahl 10 USPQ 2d 1546, 1548 (BPAI 1989); Ex parte McCullough 7 USPQ 2d 1889, 1891 (BPAI 1988); In re Finsterwalder 168 USPQ 530 (CCPA 1971); In re Casey 152 USPQ 235, 238 (CCPA 1967). Also, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim."; Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). And, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims."; In re Young, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 136 USPQ 458, 459 (CCPA 1963)). And, claims directed to product must be distinguished from the prior art in terms of structure rather than function. In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does [or is intended to do]." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

Claims 13, 15, 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clayton, Higashiguchi and Abbot as applied to claims 1 and 21 and further in combination with Vargo (20030152766).

Clayton discloses wherein the heat sink is made of a metal compound with electrical conductivity.

However, Clayton, Higashiguchi and Abbot do not appear to explicitly disclose wherein the adhesive is formed by an insulating organic paste; wherein the adhesive is made of a thermosetting resin composition containing an epoxy resin and an inorganic filler.

Still, at paragraphs 59 and 100 Vargo discloses wherein the adhesive is formed by an insulating organic paste; and wherein the adhesive is made of a thermosetting resin composition containing an epoxy resin and an inorganic filler. In addition, it would have been obvious to combine this disclosure of Vargo with the disclosure of the applied prior art because it would facilitate provision of the adhesive of the applied prior art.

Claims 20 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clayton, Higashiguchi and Abbot as applied to claims 7 and 22, and further in combination with Brandenburg (20060038284).

Clayton, Higashiguchi and Abbot do not appear to explicitly disclose wherein the part of the passage for circulating a cooling medium is formed in the thermosetting resin composition.

Regardless, at paragraphs 13 and 18, Brandenburg discloses wherein a part of a passage for circulating a cooling medium is formed in a thermosetting resin composition. Furthermore, it would have been obvious to combine this disclosure of Brandenburg with the disclosure of the applied prior art because it would facilitate cooling of the apparatus.

Applicant's remarks filed 10-11-7 have been fully considered and are adequately treated in the action supra.

For information on the status of this application applicant should check PAIR: Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alternatively, applicant may contact the File Information Unit at (703) 308-2733. Telephone status inquiries should not be directed to the examiner. See MPEP 1730VIC, MPEP 203.08 and MPEP 102.

Any other telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (571) 272-1930. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.
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David E. Graybill
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Art Unit 2822

D.G.

22-Dec-07